

individuals to participate in the execution of the associated task **150**. The task manager, the project manager and the other identified individuals form a team. The people in the team are referred to herein as team members.

[0031] According to one aspect of the present invention, an addendum database **420** (shown, e.g., in **FIG. 4**) is a storage queue of events given by community personnel during the execution of the task **150**. Thus, the task property list **300** includes a pointer to the addendum database **420** associated with the task **150**. Events comprise, for example, change requests, comments, new ideas, overlays or modifications to the input document **110**. Generally, the task manager must generate output documents **140** reflecting all comments, change requests, and other events accumulated in the persistent addendum database **420**. The addendum database **420** records all events that have occurred during the task execution. A record in the addendum database **420** includes the details of the event, such as the person that caused the event, a timestamp, and other information. In this manner, the present invention allows a project to be restored to any point of project execution and to determine which person made a particular change at a particular time.

[0032] As shown in **FIG. 3**, the task property list **300** also includes an optional target completion date indicating an estimated date and time when the task **150** will be complete. The target completion date is monitored by the project management system **200**. The target completion date supports alerts and warning reports to managers to keep the task **150** on schedule. The optional reviewer identifier in the task property list **300** launches an automatic approval process by designated reviewers when a task manager indicates that the task is complete.

[0033] **FIG. 4** illustrates a network environment **450** in which the present invention can operate. As shown in **FIG. 4**, a project management system **400** in accordance with the present invention can be implemented, for example, on a server **410**. The network **450** may be embodied, for example, as any wired or wireless network including the Public Switched Telephone Network (PSTN) and the Internet, or any combination of the foregoing. The network **450** allows one or more remote users to optionally participate, for example, by means of a connection to a local area network, a wide area network, the Internet or a combination of the foregoing.

[0034] The project management system **400** can accommodate multiple instances of a project **100**. The project **100** will have a persistent life in the server **410**. In other words, a project **100** will be maintained in the server **410** or in a related support system until deleted. The project management system **400** interacts with the external document database **175** to obtain, update and record the various input, intermediate and output documents **110**, **120** and **140** associated with a given task **150**. The members of a project team, each employing one or more client terminals **470-1** through **470-N** (hereinafter, collectively referred to as client terminals **470**), may communicate with one another and the project management system **400** over the network **450**. Each client terminal **470** employs one or more client software applications (not shown) in order to perform one or more tasks **150**.

[0035] As shown in **FIG. 4**, a project management system **400** in accordance with the present invention includes an

asynchronous collaboration component **500**, discussed below in conjunction with **FIG. 5**, a synchronous collaboration component **600**, discussed below in conjunction with **FIG. 6**, and a community and awareness service system **490**. Generally, the asynchronous collaboration component **500** allows team members to see current task documents as the combination of the original input document **110** and associated updates from the addendum database **420**. The synchronous collaboration component **600** allows two or more team member to participate in a collaborative session. As discussed further below in conjunction with **FIG. 6**, the synchronous collaboration component **600** expands the functions of the asynchronous collaboration component **500** with the addition of a sound board **900**, as discussed further below in conjunction with **FIG. 9**. Generally, the sound board **900** makes actions by one team member visible to another team member.

[0036] According to one aspect of the present invention, the synchronous collaboration component **600** is an incremental addition to the asynchronous collaboration component **500**. Thus, the present invention allows one or more team members to switch between asynchronous and synchronous collaboration modes. The community and awareness support system **490** has links to the asynchronous collaboration component **500** and the synchronous collaboration component **600**. The community and awareness support system **490** monitors all events in the asynchronous collaboration component **500** and synchronous collaboration component **600** and notifies team members of appropriate events. The community service and awareness system **490** uses the access list in the task property **300** so that each task **150** in a project can have a different community.

[0037] **FIG. 5** illustrates a configuration of the project management system **400** of **FIG. 4** in an asynchronous collaboration mode. As previously indicated, the asynchronous collaboration component **500** allows team members to see current task documents. At any point in time, a given document is comprised of a base document from the external document database **175** and the contributions kept in the task addendum database **420**. The task addendum database **420** contains all the markups and other changes made by any team member. By overlaying the base document with the contributions in the task addendum database **420**, team members can see the up-to-date status of the document, in a manner described further below in conjunction with **FIG. 10**.

[0038] As shown in **FIG. 5**, the asynchronous collaboration component **500** includes an active client agent **510** for each active team member. It is noted that in an asynchronous collaboration mode only one team member is active at a time. The active client agent **510** accesses the input documents in the document database **175** and any corresponding modifications contained in the addendum database **420** for delivery to the client software **480** on the client terminal **470** of the requesting team member. Information from the addendum database **420** contains data and commands for the client application software (not shown) to support replay of event sequences made by other team members up to a given point in time. All records in the addendum database **420** are time-stamped and tagged with additional information.

[0039] The active client agent **510** can transform the output, for example, in an XML format. The XML output